

Application. No. 10/668,805
Amendment dated August 17, 2007
Reply to Office Action of May 18, 2007

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended)[[:]] A ~~single~~, one piece, multifunctional rotary tool bit ~~for a drilling and surgical cutting system adapted~~ for preparing an osteotomy in a bone, comprising:

a) a longitudinal, rotatable shaft having a proximal end and a distal end;

b) a mounting shank disposed at said proximal end of said longitudinal, rotatable shaft for interfacing with a handpiece of an osteotomy cutting and drilling system;

c) an osteocompressive portion axially aligned with and disposed at said distal end of said longitudinal, rotatable shaft;

[[c]] d) a cutting and drilling blade having a proximal end and distal end, portion axially aligned with and disposed adjacent at said distal end of said longitudinal rotatable shaft, said cutting and drilling blade including a plurality of cutting edges; and osteocompressive portion and comprising:

[[d]] i) an osteotomy locator tip having dual lobes disposed in a common plane, formed at said a distal end of said cutting and drilling blade portion; , to locate an osseous implant site and prevent wandering and slipping of said tip; and

[[e]] ii) said tool bit comprising a single instrument comprising the functions of a crestal bone height reducer, an osteotomy locator, an osteotomy, a lateral redirector portion axially aligned with and disposed adjacent said osteotomy locator tip; and an osteotomy drill

iii) a crestal bone height reducing portion axially aligned with and disposed intermediate said lateral redirector portion and said osteocompressive portion.

Claim 2 (cancelled)

Claim 3 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
[[2]] 1, wherein said redirectable ~~tip~~ portion is
approximately 2.0 mm in length.

Claim 4 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
[[2]] 1, wherein said cutting and drilling ~~blade has~~
portion comprises multifaceted cutting edges ~~for creating a~~
~~crestal bone height reducer.~~

Claim 5 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
[[4]] 1, wherein ~~said proximal end of said cutting and~~
~~drilling blade comprises~~ further comprising:

e) a tapered countersink axially aligned with and
disposed intermediate said osteocompressive portion and
said cutting and drilling portion.

Claim 6 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim 5,
wherein ~~the last portion of said proximal end of said~~
~~cutting and drilling blade immediately after~~ said tapered
countersink further comprises a gross osseous crestal bone
height reducer.

Claim 7 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim 6,
further comprising:

f) an osteocompressor operatively connected to said
gross osseous crestal bone height reducer.

Claim 8 (currently amended)[[:]] The tool bit in
accordance with claim 7, wherein said cutting and drilling
~~blade~~ portion is coated with a material to reduce the
coefficient of friction, improve drilling and cutting
performance, improve wear and corrosion resistance, and
increase the thermal conductivity of said cutting and
drilling blade.

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Claim 9 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 8, wherein said cutting and drilling ~~blade~~ portion coating material is selected from [[a]] the group consisting of: a diamond-like carbon coating, a ceramic coating, a tungsten carbide coating, a titanium nitride coating, an aluminum titanium nitride coating, a tungsten disulfide coating, a diamond dust particulate coating, and a combination of said enumerated materials.

Claim 10 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim [[7]] 1, further comprising:

e) a linking member axially aligned with and disposed intermediate said osteocompressive portion and said distal end of said rotatable shaft ~~operatively connecting said gross crestal bone height reducer and said mounting shank.~~

Claim 11 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 10, wherein said linking member is coated with a material

to reduce the coefficient of friction, and improve wear and corrosion resistance of said linking member.

Claim 12 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 11, wherein said linking member coating material is selected from [[a]] the group consisting of: a diamond-like carbon coating, a ceramic coating, a tungsten carbide coating, a titanium nitride coating, an aluminum titanium nitride coating, a tungsten disulfide coating, a diamond dust particulate coating, and a combination of said enumerated materials.

Claim 13 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim ~~10~~ 1, wherein said mounting shank includes a chuck comprising a generally I-shaped flat side and a generally semicircular disk above and adjacent to a generally semicircular groove.

Claim 14 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 13, in combination with a rotation-providing handpiece to form a dental drilling and cutting system.

Claim 15 (currently amended)[[:]] A ~~single~~, one-piece, multifunctional rotary tool bit for ~~a dental drilling and cutting system adapted for~~ preparing an osteotomy in jawbone, comprising:

a) a longitudinal, rotatable shaft having a proximal end and a distal end;

b) a mounting shank disposed at said proximal end of said longitudinal, rotatable shaft for interfacing with a handpiece of an osteotomy cutting and drilling system;

c) a cutting and drilling ~~blade~~ portion having a proximal end and a distal end, disposed at said distal end of said longitudinal rotatable shaft, said cutting and drilling ~~blade portion including comprising~~ a plurality of cutting edges and surfaces for cutting and drilling bone and tissue material; and

d) an osteotomy locator tip having dual lobes disposed in a common plane, formed at said distal end of said cutting and drilling ~~blade~~ portion, to ~~locate~~ define an

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osseous implant site and prevent wandering and slipping of said osteotomy locator tip away therefrom.

Claim 16 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 15, wherein ~~the first portion of said distal end of said cutting and drilling blade portion immediately after said osteotomy locator tip~~ comprises a ~~redirectable tip~~ lateral redirector portion disposed intermediate said osteotomy locator tip and said proximal end of said cutting and drilling portion, permitting the avoidance of vital features in the jawbone by the lateral movement of said ~~redirectable tip~~ lateral redirector portion.

Claim 17 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 16, wherein said ~~redirectable tip~~ lateral redirector portion is approximately 2.0 mm in length.

Claim 18 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 17, wherein said cutting and drilling ~~blade has~~ portion

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comprises multifaceted cutting edges ~~for creating a crestal bone height reducer.~~

Claim 19 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with
claim ~~18~~ 15, ~~wherein said~~ further comprising:

e) a tapered countersink disposed intermediate said proximal end of said cutting and drilling blade portion and said distal end of said longitudinal rotatable shaft
~~comprises a tapered countersink.~~

Claim 20 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
19, ~~wherein the last portion of said proximal end of said cutting and drilling blade portion immediately after said tapered countersink further~~ comprises a gross osseous
crestal bone height reducer disposed adjacent said tapered countersink.

Claim 21 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim ~~20~~
19, further comprising:

f) an osteocompressor ~~osteotome~~ operatively
~~connected to said gross crestal bone height reducer~~
disposed intermediate said tapered countersink and said
distal end of said longitudinal rotatable shaft.

Claim 22 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
21, wherein said cutting and drilling ~~blade~~ portion is
coated with a material to reduce the coefficient of
friction, improve drilling and cutting performance, improve
wear and corrosion resistance, and increase the thermal
conductivity ~~of said cutting and drilling blade~~ thereof.

Claim 23 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
22, wherein said ~~cutting and drilling blade~~ coating
material ~~is~~ comprises a material selected from ~~a~~ the group
consisting of: a diamond-like carbon coating, a ceramic
coating, a tungsten carbide coating, a titanium nitride
coating, an aluminum titanium nitride coating, a tungsten
disulfide coating, a diamond dust particulate coating, and
a combination of said enumerated materials.

Claim 24 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim 20
21, further comprising:

g) a linking member ~~operatively connecting~~ disposed
intermediate said gross crestal bone height reducer and
said ~~mounting-shank~~ distal end of said longitudinal
rotatable shaft.

Claim 25 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
24, wherein said linking member is coated with a material
to reduce the coefficient of friction, and improve wear and
corrosion resistance ~~of said linking member~~ thereof.

Claim 26 (currently amended)[[:]] The one-piece,
multifunctional rotary tool bit in accordance with claim
25, wherein said ~~linking member~~ coating material ~~is~~
comprises a material selected from [[a]] the group
consisting of: a diamond-like carbon coating, a ceramic
coating, a tungsten carbide coating, a titanium nitride
coating, an aluminum titanium nitride coating, a tungsten

disulfide coating, a diamond dust particulate coating, and a combination of these enumerated materials.

Claim 27 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 24, wherein said mounting shank ~~includes~~ comprises a chuck comprising a generally I-shaped flat side and a generally semicircular disk above and adjacent to a generally semicircular groove.

Claim 28 (currently amended)[[:]] The one-piece, multifunctional rotary tool bit in accordance with claim 27, in combination with a rotation-providing handpiece to form a dental drilling and cutting system.

Claim 29 (currently amended)[[:]] A method for drilling and cutting to prepare an osteotomy in a jawbone, comprising the steps of:

a) using a cutting and drilling blade with [[a]] an osteotomy locator tip of a multifunctional dental surgical tool to precisely locate an osseous implant site and

prevent wandering and slipping of said tip to perform
crestal bone marking;

b) using a redirectable tip of said cutting and
drilling blade to avoid bone and tissue anatomical vital
sites in a patient's jawbone;

c) using a crestal bone height reducer operatively
formed from said cutting and drilling blade, to create a
leveled implant osseous platform by moving said cutting and
drilling blade in a buccal-lingual, nonlinear motion;

d) using said crestal bone height reducer to harvest
bony particulate material;

e) using a tapered countersink of said multifunctional
dental surgical tool to create a counterbore in cortical
bone of said jawbone;

f) using a gross osseous crestal bone height reducer
of said multifunctional dental surgical tool to harvest
bony particulate materials;

g) using an osteocompressor operatively connected to said gross osseous crestal bone height reducer to compress the osseous site, completing the preparation of said osteotomy in said jawbone; and

h) using a synthetic bone graft material mixed with said bony particulate material to reconstruct bone structures.